

Amendments to the Claims:

Please replace all prior versions, and listings of claims in the application with the following listing of claims.

Listing of claims

Claim 1 (currently amended): A deinterleaving method for processing data, comprising:
sorting a sequence of data items from a first order to a second order; ~~characterized by the steps of:~~

withdrawing at least a first data item having a first position from said sequence;
determining a destination position for said withdrawn data item within said sequence;

and

determining whether said determined destination position contains any data item, if so replacing the data item of said determined destination position with the withdrawn data item, otherwise inserting the first data item at said determined destination position.

Claim 2 (original): The deinterleaving method according to claim 1, wherein the destination position is calculated based on the index of the first position and the number of data items of said sequence.

Claim 3 (currently amended): The deinterleaving method according to claim 1 ~~[[or 2]]~~, wherein two data items are repositioned in each sequence of steps.

Claim 4 (currently amended): The deinterleaving method according to ~~any of the previous claims~~ claim 1, wherein the method is an in-place method carried out within a memory ~~[[(110)]]~~ having a set of memory locations.

Claim 5 (currently amended): The method according to ~~any of the previous claims~~ claim 1, wherein said sequence comprises an even number of data items, and wherein the number of data items relating to a first set of data items of said sequence is equal to the number of data items relating to a second set of data items of said sequence.

Claim 6 (currently amended): The deinterleaving method according to ~~any of the previous claims~~ claim 1, wherein data items relating to a first and a second set of data items, respectively, are arranged alternating in said sequence before sorted, and wherein the data items when sorted within said sequence are grouped into consecutive data items having consecutive positions.

Claim 7 (original): The deinterleaving method according to claim 5, wherein the two first data items to be repositioned in the same repositioning sequence are selected as one data item relating to each of the first and second sets of data items, and wherein said two first data items are selected as any other data items than the first and last data items of the sequence.

Claim 8 (currently amended): The deinterleaving method according to ~~claims 5 or 7~~, claim 5 wherein the two first data items to be repositioned are selected as the data items stored at the center positions of said sequence.

Claim 9 (currently amended): The deinterleaving method according to ~~any of the previous claims~~ claim 1, further comprising the steps of:

if the destination position contains no data item, determining at least one incorrectly positioned data item to reposition; and
repositioning said at least one incorrectly positioned data item.

Claim 10 (original): The deinterleaving method according to claim 9, wherein the position of the at least one incorrectly positioned data item to be repositioned is determined as:

the position preceding a first destination position, which did not contain any data item; and/or

the position following a second destination position, which did not contain any data item.

Claim 11 (currently amended): The deinterleaving method according to ~~any of the previous claims~~ claim 1, wherein the sequence is indexed from 0, and wherein the destination position of any incorrectly positioned data item is:

the index of the first position divided by 2, if the index of the first position is even; or
the total number of memory locations divided by 2 and added to the index of the first position divided by 2, if the index of the first position is odd.

Claim 12 (currently amended): A deinterleaving device ~~[(130)]~~ for sorting a sequence of data items from a first order to a second order, comprising:

a memory ~~[(110)]~~ having a set of memory locations for storing the sequence of data items~~[[, and]]~~;

a processor ~~[(120)]~~ for sorting the data items~~[[,]] ; and characterized by~~

a buffer for storing at least a first data item at a first memory location;

wherein said processor ~~being~~ is adapted to withdraw said data item from said buffer, and to determine a destination memory location for said withdrawn data item, and to determine whether said determined destination memory location contains any data item, if so replacing the data item of said determined destination memory location with the withdrawn data item, otherwise inserting the first data item at said determined destination memory location.

Claim 13 (original): The deinterleaving device according to claim 12, wherein the processor is adapted to calculate the destination position based on the index of the first position and the number of data items of said sequence.

Claim 14 (currently amended): The deinterleaving device according to claim 12 ~~[[or 13]]~~, wherein the processor is adapted to reposition two data items in each repositioning sequence.

Claim 15 (currently amended): The deinterleaving device according to ~~any of the claims 12 to 14~~ claim 12, wherein the processor comprises a register file, and the repositioning of data items is done in-place in said memory ~~[(110)]~~.

Claim 16 (currently amended): The deinterleaving device according to ~~any of the claims 12 to 15~~ claim 12, wherein said memory $[(110)]$ comprises an even number of memory locations.

Claim 17 (currently amended): The deinterleaving device according to claim 14, wherein the processor $[(120)]$ is adapted to select the two first data items to be repositioned in the same repositioning sequence as one data item relating to each of a first and a second set of data items, and select said two first data items as any other data item than the first and the last data items of the sequence.

Claim 18 (currently amended): The deinterleaving device according to claim 16 $[(17)]$, wherein the processor $[(120)]$ is adapted to select the two first data items to be repositioned as the data items stored at the center memory locations of the memory $[(110)]$.

Claim 19 (currently amended): The deinterleaving device according to ~~any of the claims 12 to 18~~ claim 12, further adapted to:

- if the destination memory location contains no data item, determine whether all data items of said sequence are positioned at their correct memory location;

- if any data item is stored at an incorrect memory location, determine at least one incorrectly positioned data item to reposition; and

- reposition said at least one incorrectly stored data item.

Claim 20 (original): The deinterleaving device according to claim 19, wherein the memory location of the at least one incorrectly stored data item to reposition is determined as:

- the memory location preceding a first destination memory location, which did not contain any data item; and/or

- the memory location following a second destination memory location, which did not contain any data item.

Claim 21 (currently amended): The deinterleaving device according to ~~any of the claims 12 to 20~~ claim 12, wherein the memory locations are indexed from 0, and wherein the index of the destination memory location of any incorrectly positioned data item is determined as:

the index of said first memory location divided by 2, if the index of said first memory location is even; or

the total number of memory locations divided by 2 and added to the index of said first memory location divided by 2, if the index of said first memory location is odd.

Claim 22 (currently amended): An electronic apparatus $[(1)]$ for rendering a sequence of interleaved data items, comprising a deinterleaving device $[(130)]$ for sorting data items according to ~~any of the claims 12 to 20~~ claim 12.

Claim 23 (currently amended): The apparatus according to claim 22, wherein the apparatus $[(1)]$ is a mobile radio terminal, a personal digital assistant, a pager, a smartphone, communicator, an electronic organizer, or a multimedia player for rendering digital multimedia files.

Claim 24 (currently amended): The apparatus according to claim 22, wherein the apparatus is a mobile telephone $[(1)]$.

Claim 25 (currently amended): A computer program product embodied on a computer readable medium $[(111)]$, comprising computer readable instructions to carry out the method according to ~~any of the claims 1 to 11~~ claim 1 when run by an electronic device having digital computer processing capabilities.